

## **Abstract of the Disclosure**

The present invention relates to a method for embedding a digital watermark into a halftone image comprised of clusters of halftone dots, which are referred to as geometric primitives. This method embeds a watermark image signal including an array of

- 5 multilevel per pixel delta values by increasing or decreasing the size of a corresponding  
cluster of halftone dots. In particular, each delta value represents a change in luminance  
in one implementation, but this delta value could correspond to other color planes of a  
monotone or color halftone image. The watermark embedder subtly changes the halftone  
primitives by toggling boundary pixels on or off in a manner that grows or shrinks the  
10 primitive.

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